MUNDELL & ASSOCIATES, INC.

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September 25, 2008

Ms. Erin Brittain
Project Manager
Voluntary Remediation Program
Office of Land Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

Re: **Response to IDEM Comments to the Remediation Work Plan**
Michigan Plaza
3801-3823 West Michigan Street
Indianapolis, Indiana 421325
IDEM Incident # 0000198
MUNDELL Project No. M01046

Dear Ms. Brittain:

This *Remediation Work Plan Letter Response* is being submitted to the Indiana Department of Environmental Management (IDEM) by MUNDELL & ASSOCIATES, INC. (MUNDELL), on behalf of AIMCO, as a response to IDEM's letter dated May 27, 2008. Additional activities have been performed by MUNDELL to address many of the outstanding items detailed in IDEM's letter (dated May 27, 2008). There are a few remaining items we have proposed for IDEM's consideration pursuant to gathering the data necessary to address the remaining concerns of IDEM. This additional data will ultimately be compiled into a Remediation Work Plan Addendum I Report as requested. Please find the following responses and proposed remaining activities MUNDELL seeks to discuss in a meeting upon your review and earliest convenience;

IDEM Comment No. 1. The CAP-18 remediation strategy proposed and implemented by the consultant is not objectionable to IDEM However, additional clarification and monitoring data will be required before IDEM can grant formal approval. The RWP does not clearly state the alternative remedial strategy if the CAP-18 remedy does not satisfactorily degrade contaminants to the intended closure goals. Additional CAP-18 injections may be necessary or a completely alternative remedy will need to be developed should contaminants persist above closure goals.

MUNDELL Response: Additional data is being collected and is being evaluated by MUNDELL to track CAP-18 effectiveness. Quarterly monitoring of the monitoring well network approved by IDEM is being performed, the latest data for which is attached as **Figure 1**, on which areas in green demonstrate reductive dechlorination (solvent breakdown) is occurring.

Also, additional monitoring wells have been installed at the Floral Park property, and have been incorporated in the quarterly monitoring network starting Q3-08.

As was included in the RWP in Section 3.2.3 (Selected Remediation Technologies), additional CAP- 18 injections may be considered if deemed appropriate upon evaluation of further data/CAP-18 progress. Furthermore, if after evaluation it is determined that the initial CAP-18 injections and any subsequent injections are not sufficiently degrading the contaminants, the alternative technology that was proposed in the RWP was active Soil Vapor Extraction (SVE) with Air Sparging (AS). Additional alternative methods will be evaluated again in context of the current known conditions to assess if the SVE-AS recommendation remains the best alternative approach, or if another treatment option would be a better choice technically, practically and economically.

IDEM Comment No. 2. The extent of groundwater contamination has not been defined. The IDEM agrees with the placement of the monitoring well west of MW-171S and MW-171D once access is granted on the Floral Park Cemetery property. Also, please update the figures in the RWP with the newly constructed Floral Park Cemetery building, which is directly south of Michigan Plaza.

MUNDELL Response: MUNDELL drilled at the Cemetery in August and did find shallow PCE impacts just south of the plaza property line on Cemetery property, but not extensively toward our further downgradient wells. MUNDELL has installed two (2) shallow monitoring wells to further delineate the known PCE plume area, and upon receipt of the next round of groundwater sampling, anticipate motioning to sample the further downgradient monitoring wells (MMW-P-09D and MMW-P-09S) only annually.

Figure 2 is attached which illustrates the geoprobe groundwater sampling results from the testing described above. The data shows a definitive increase in VC as the borings test deeper, which reconfirms Genuine impacts at a deeper level in the aquifer. The newly constructed Floral Park Funeral Center is actually further west of the area depicted in our RWP figures, so it is not included.

IDEM Comment No. 3. The consultant has proposed to install three additional vapor mitigation systems at the Michigan Meadows Apartment Complex. The RWP stated indoor air samples will be collected shortly after installing the systems. This should be completed as soon as possible if indoor air samples have not already been taken. It should be noted that IDEM requires at least one round of indoor air sampling under worst-case scenario conditions. Worst-case .scenario is late winter/early spring, the inside temperature is 10 degrees greater than the outdoor temperature, the soil is frozen or saturated with rain, doors and windows are closed, and the mechanical heating system is operating. Therefore, it may be necessary to collect additional air samples if worst-case scenario conditions were not met.

MUNDELL Response: Three additional sub-floor slab depressurization units were installed by *Air Quality Control (AQC)* under the oversight of MUNDELL on March 19 and March 26, 2008. A unit/blower was installed in the following spaces at Michigan Apartments:

1) Building No. 1, Basement Apt. 101 (B-5),
2) Building No. 6, Basement Apt. 602 (B-6), and
3) Building No. 10, Basement Apt. 1001 (B-7).

A follow-up indoor air sampling event to evaluate post-installation mitigation system effectiveness was conducted by MUNDELL in April 2008. This event included sampling of the four units with the installed air mitigation systems at the Plaza, and the three additional units with newly installed systems at the Apartments. This event was performed after the apartment systems had been running for about three weeks.

Indoor air samples (summa canisters) were collected at four tenant units at Michigan Plaza (Village Pantry (3801), Vacant Handicapped space (3815), Mexican Grocery store (3819) and the Laundromat (3823)) with the air mitigation systems, and at four apartments (Basement Apt. 101 (Building No. 1), Basement Apt. 602 (Building No. 6), Basement Apt. 1001 (Building No. 10), and Apt No. 109 (Second Floor, Building No. 1 (prior highest concentration)).

Significantly reduced indoor air concentrations (Apts Building No. 1, Plaza 3815 space, Mexican store space) below or slightly above the IDEM new draft April 2006 target levels are illustrated in attached **Figure 3**. Also, reduced concentrations were noted in the soil gas monitoring wells (MGW-1 and MGW-3) indicating COCs are being remediated in the area. **Table 1** presents the EPA and IDEM screening/target levels. The detailed '***Additional Indoor Air Mitigation System Installation (March 2008) and Follow-up Air Quality Investigation Report***' will be attached as an Appendix to the RWP Addendum I.

The soil gas well MGW-5, in the middle of the plaza parking lot shows impacts exceeding some of the IDEM soil gas screening levels (worst case conditions with an exposure duration of 25 years). This duration of exposure is a very conservative comparison, as this location has only been a parking lot since the development of the land, and the practical exposure duration is much less given the infrequency of human presence in this location. Furthermore, the nearest inhabited indoor spaces are all currently being addressed with air mitigation systems, therefore exposure pathways are significantly being reduced. MUNDELL will sample this gas well (MGW-5) again in December 2008 along with the next quarterly groundwater sampling round, to monitor soil gas trends in this area, particularly since it is located in the heart of Source Area B. MUNDELL anticipates these levels have been introduced from the previously existing groundwater plume in Source Area B which is currently going through dechlorination via the CAP-18 remediation

Finally, quarterly 'air mitigation system stack samples' are being collected at each of the seven air mitigation units, and will be tabulated and summarized in future report submissions

IDEM Comment No. 4. A vapor sampling plan including annual sampling of the Michigan Meadows Apartments and Michigan Plaza at worst-case scenario conditions needs to be included in the RWP. Also, all vapor data collected to date must be included in the RWP.

MUNDELL Response: MUNDELL agrees. Annual sampling of the Michigan Meadows Apartments and Michigan Plaza at worst-case scenario conditions will be performed.

MUNDELL will perform one or more rounds of indoor air monitoring with the air mitigation systems (active engineering controls) switched off at the time of Site closure. An indoor air sampling round will be conducted one week after air mitigation systems are shutdown, with at least one further follow-up sampling rounds to occur within three months of the system shutdown, to be scheduled at worst-case scenario conditions.

IDEM Comment No. 5. Two businesses in the strip mall and three of the apartment buildings have or will have operating vapor mitigation systems. While these may eliminate the inhalation pathway, they are an active engineering control that requires maintenance and monitoring. Because of the nature of a VRP Covenant Not to Sue (CNTS), with which IDEM releases the applicant from all further responsibility, any technology which requires active operation and maintenance cannot be included as a part of the permanent closure strategy. VRP does not anticipate granting closure on any site while active remediation is still required.

MUNDELL Response: On attaining clean-up, MUNDELL will perform one or more rounds of indoor air monitoring with the air mitigation systems (active engineering controls) switched off as discussed in response to comment No. 4. At that point, with the groundwater and if necessary, soil impacts having been remediated sufficiently, vapor intrusion and hence inhalation pathway issues will likely have be eliminated. Air testing data will be documented for IDEM's consideration of sufficiency and approval.

IDEM Comment No. 6. The RWP indicates that indoor air impacts at the Michigan Plaza and Michigan Meadows Apartments are attributable to background conditions and implies the vapor contamination is from the Genuine Parts plume. Tables 19a and l9b show the Constituents of Concern (COCs) detected above target indoor air concentrations are mainly PCE and TCE. The presence of these COCs in soil and groundwater on the Michigan Plaza and Michigan Meadows Apartment properties has been shown not to be related to the Genuine Parts site. The COCs cis-1,2 DCE and vinyl chloride were each detected above target indoor air concentrations at the Michigan Plaza site. The shallow groundwater in this area also has cis-1,2 DCE and vinyl chloride contamination which is attributable to the Michigan Plaza plume (Figures 31 C and 31 D).

MUNDELL Response: Please see MUNDELL Response to Comments No. 3 and 5 above.

IDEM Comment No. 7. Three source areas are identified in the RWP including one beneath the Michigan Plaza building as Source Area A, one near the Michigan Meadows Apartment Buildings 10 and 6 as Source Area B, and a third source area near Michigan Meadows Apartment Building 1 as Source Area C. No soil samples have been collected beneath the Michigan Plaza building in the area of the former Accent Cleaners and soil impacts in all three source areas have not been delineated to RISC Residential Default Closure Levels (RDCLs). The soil medium must be addressed in the RWP.

MUNDELL Response: See attached **Figure 4** for proposed soil boring locations beneath and around the Plaza building, and also in Source Area B for addressing the soil medium. MUNDELL proposes to oversee the advancement of geoprobe borings inside the building with a small LT-50 rig, which would allow drilling/testing inside the building in locations yet uncharacterized.

MUNDELL proposes the advancement of ten (10) soil borings beneath and around the plaza building to define the extent of soil and groundwater contamination (**Figure 4**). During the completion of the soil borings, soil samples for characterization will be collected continuously during each boring and the samples classified by a MUNDELL geologist. A photo-ionization detector will be used to screen each soil sample at 1 ft intervals for total photoionizable vapors (TPVs).

Discreet soil samples for laboratory analysis will be collected as per the protocol outlined in EPA's SW-846 Method 5035A for sampling of soils for volatile organic compounds (VOCs), with the convention of analyzing <u>at least</u> one soil sample from each boring from the depth above the water table that exhibits the most likelihood of having soil contamination.

A mobile laboratory will be used for real time results which will aid in delineating the extent of the soil impacts. The laboratory proposed includes the production of Level IV QA/QC documentation. MUNDELL proposes to start drilling in the vicinity of the possible former dry cleaning machine location and proceed radially out to define the extent of impacts.

Pursuant to the soil impacts documented in the sewer line excavation in October, 2007, MUNDELL also proposes the advancement of four (4) soil borings surrounding the release area of the sewer which generated source Area B to further define the extent of soil impacts in this area (**Figure 4**).

Shallow groundwater samples will also be collected at select boring locations for laboratory analytical testing using dedicated disposable plastic tubing placed inside the groundwater

sampling probe. Soil and shallow groundwater analysis will be performed, results will be evaluated, and the proposed next steps to address any impacts will be presented accordingly in the addendum to the RWP.

IDEM Comment No. 8. Figures 20, 22, 32a and 32b imply that all or nearly all of the deep cis-1,2 DCE and vinyl chloride contamination is a part of the Genuine Parts plume. There is currently insufficient data to support whether this is accurate or not. There are no deep wells between Genuine Parts well MW-I 66 and the up-gradient edge of the Michigan Plaza plume, which there is approximately 300 feet between those two wells. The contaminants and contaminant behavior from both plumes are nearly identical. Without a clear measurement of the vertical extent of contamination in all Michigan Plaza source areas, IDEM cannot determine if deep contaminants present down-gradient of these source areas are primarily related to the Michigan Plaza release. Deep wells in the areas of GP-A-01, MMW-2S, and west of MMW-I I S may clarify the nature and extent of deep contaminants. Also, cross sectional maps of the plumes, with data points, need to be submitted in the Revised RWP.

MUNDELL **Response**: See attached **Figure 4** for two proposed deep monitoring well locations. The request for an additional deeper monitoring well in the area of MMW-2S seems excessive with substantial upgradient deep wells within the area. Also, the presence of a shallower hard clay till ridge at the base of the shallow aquifer in that area will like prevent the installation of a deeper well there. Upon agreement and installation of additional monitoring wells, MUNDELL will include updated cross sectional maps of the plumes, with data points in the RWP addendum

IDEM Comment No. 9. Wells MW-2S, MW-3S, MW-4D, MW-5D, MW-6D and MW-7S have apparently been sampled since September 2006 but those results have not been tabulated. Figures 31a-31d have not been updated to show the entire well network or the updated plume data. It appears from the figures that all updating stopped in February 2007, even though the RWP is dated February 22, 2008. All tables and figures must show the most current data.

MUNDELL **Response:** The figures have been updated and will be attached to the RWP Addendum I.

IDEM Comment No. 10. The IDEM appreciates that there is a significant amount of data about the site and that there have been several phases of investigation. However, the tables and figures are separated out into individual components depicting single sampling or mobilization events. This makes it difficult to get a full picture of the plume behavior. The IDEM requests one large scale figure which shows all soil samples and another figure which shows all groundwater samples with dates of sampling.

MUNDELL Response: The large scale, all inclusive soil and groundwater data figures have been generated and will be attached to the RWP Addendum I.

IDEM Comment No. 11. The RWP identifies PCE, TCE, cis-1,2 DCE, and vinyl chloride as indicator compounds. If these compounds are the COCs in the remedial project area, then closure goals need to be included in the RWP for all COCs and also identifying the COC closure goals for soil, groundwater, etc. The RWP also states that closure goals for cis-1,2 DCE and vinyl chloride will be determined at a later date; however, closure goals for these compounds need to be provided in the Revised RWP.

MUNDELL Response: The deep upgradient wells (the two proposed deep wells along with the northern wells) will demonstrate 'background' groundwater impacts (attributable to Genuine) at the Site, and cleanup goals to these background concentrations will be proposed for the deeper aquifer. The PMW-13D would serve as an upgradient well for Source Area B and PMW-12D for source Area C. MUNDELL will propose cleaning up to these background concentrations in the deeper aquifer, and to RISC Residential Default Closure Levels (RDCL) on the Apartments property and RISC Industrial Default Closure Levels (IDCL) on the Plaza property. Further details will be discussed at the forthcoming meeting requested with IDEM in October 2008.

IDEM Comment No. 12. The RWP states that institutional controls will be utilized upon site closure. It is not clear which institutional controls are to be implemented such as groundwater or soil restrictions in an Environmental Restrictive Covenant (ERC). Institutional controls should be clearly identified in the RWP for both the Michigan Plaza and Michigan Meadows Apartments properties.

MUNDELL Response: The Institutional Controls anticipated in the ERC will likely include –

- No use of groundwater as a drinking water source.
- The Plaza property is currently zoned as commercial. The ERC will likely have a limitation of the Michigan Plaza as a commercial use only property.
- Proper handling of any impacted soils that are excavated, according to applicable laws; this will include considerations in order to minimize potential exposure to construction or other workers who may be exposed to surface or subsurface soils during future construction excavation or utility work.

Further details will be discussed at the forthcoming meeting requested with IDEM in October 2008.

IDEM Comment No. 13. Figure 2b shows a red outline of the approximate boundaries of the VRP project area. Although it is appropriate at this stage of the project to identify areas targeted for remediation, the final Covenant Not to Sue area will be determined at the conclusion of the

project. Please note that coverage under a CNTS will not be granted for areas, media, or constituents that have not been sampled, for areas of the site that are beyond the area of contaminant delineation, or that extend beyond the Michigan Meadows property boundary.

MUNDELL Response: MUNDELL agrees.

IDEM Comment No. 14. According to RISC Guidance, Level IV QA/QC documentation should be provided when defining nature and extent of contamination and at closure. These requirements may be found at http://www.in.gov/idenVprograms/risc/techguide/pdfs/riscapp2.pdf

MUNDELL Response: MUNDELL agrees.

IDEM Comment No. 15. The IDEM Draft Pilot Program Vapor Intrusion Guidance states that Level IV QA/QC documentation should be provided with all sampling. All future indoor air sampling should include Level IV QA/QC documentation (including raw data).

MUNDELL Response: MUNDELL agrees.

IDEM Comment No. 16. A site-specific matrix spike/matrix spike duplicate was not collected for the quarterly sampling in September 2007. A site-specific matrix spike/matrix spike duplicate should be provided with every quarterly sampling event.

MUNDELL Response: MUNDELL agrees.

IDEM Comment No. 17. The RWP did not state that IDEM will split confirmation sampling either during additional investigations or for closure sampling. The IDEM must split samples for both soil and groundwater before closure will be granted for the site. A final sampling and analysis plan must be submitted to IDEM for approval before the end of the project.

MUNDELL Response: MUNDELL agrees.

General Comments

Please find attached (Table 2) the list of VOCs typically showing up at the Site out of the 62+ compounds analyzed. Table 2 lists our proposed shorter list of VOCs to be analyzed during every quarterly monitoring event. This list includes all expected breakdown products of PCE, some common and potential laboratory artifacts, and other pertinent constituents (15 constituents total). This change will reduce analytical testing costs and still accomplish what we need to be

monitoring at this point in the project. If at some later point there is reason to adjust which 15 constituents are analyzed, this can easily be done easily. Certainly the full list of VOC analytes will be run when closure sampling is performed.

MUNDELL submits this data and the proposed activities in response to IDEM's specific comments in the May 27, 2008 letter. Given there are some remaining item's IDEM has requested, MUNDELL requests that a meeting be set up in October, 2008 with MUNDELL, AIMCO and IDEM upon your review and earliest convenience to establish the agreed upon steps moving ahead related to potential soil impacts, any additional monitoring well placements, and the monitoring protocol established herein. Thank you for your consideration.

Sincerely,
MUNDELL & ASSOCIATES, INC.

Leena Lothe
Staff Environmental Engineer

Chris Jaros, E.I.T.
Senior Project Manager

John A. Mundell, P.E., L.P.G.
President/Senior Environmental Consultant

/lal

Attachments: *Tables*
Figures

cc: Mr. Stephen Evanoff, AIMCO

TABLES

TABLE 1
AIR CONCENTRATION HEALTH-BASED LIMITS
Michigan Plaza Shopping Center
Indianapolis, Indiana
MUNDELL Project No. M01046

Chemical Name	Carcinogen Classification*	U.S. EPA Draft Guidance Target Indoor Air Concentration,(ug/m^3) a	IDEM Draft Default Residential Vapor Intrusion Concentration, (ug/m^3) b	IDEM Draft Default Occupational Vapor Intrusion Concentration, (ug/m^3) b	U.S. EPA Draft Guidance Target Deep Soil Gas (ug/m^3) [a]	IDEM Draft Guidance Residential Soil Gas Screening Levels (ug/m^3) [b]	IDEM Draft Guidance Commercial Soil Gas Screening Levels (ug/m^3) [b]	IDEM Draft Guidance Residential Sub slab Screening Levels (ug/m^3) [b]	IDEM Draft Guidance Commercial Sub slab Screening Levels (ug/m^3) [b]
cis-1,2-Dichloroethylene (cis-1,2-DCE)	D	35	37	51	3500	NA	NA	NA	NA
Tetrachloroethylene (PCE)	B/C	8.1	3.2	6.8	810	320	680	32	68
Trichloroethylene (TCE)	B/C	0.22	1.2	7.9	22	120	790	12	79
Vinyl Chloride	A	2.8	2.2	8.9	280	220	890	22	89

*Integrated Risk Information System (RISC), U.S. Environmental Protection Agency (EPA)

[a] EPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, November 2002

[b] IDEM Draft Vapor Intrusion Pilot Program Guidance - April 26, 2006

A = Human Carcinogen
B = Probable human carcinogen
C = Possible human carcinogen
D = Not classifiable as to human carcinogenicity

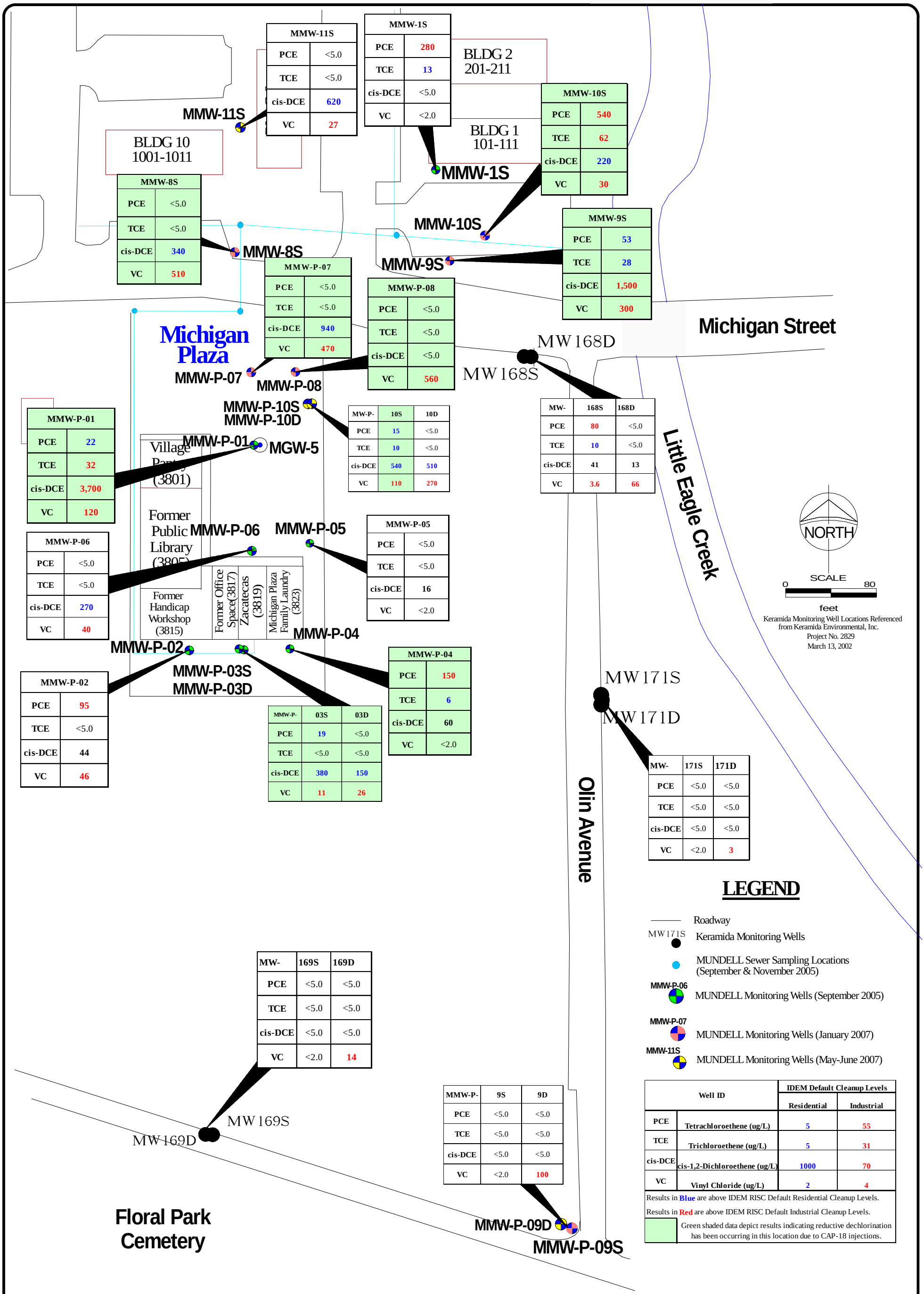
NA - Not Available

Table 2 - Proposed Short List of VOC Constituents of Concern
Michigan Apts & Plaza - Indianapolis, Indiana

Constituent of Concern	2006 IDEM RISC Default Cleanup Objectives (ug/L)	
	Residential	Industrial
PCE (Tetrachloroethene)	**5**	**55**
TCE (Trichloroethene)*	**5**	**31**
cis-1,2-DCE (cis-1,2-Dichloroethene)*	**70**	**1,000**
trans-1,2-DCE (trans-1,2-Dichloroethene)*	**100**	**2,000**
Vinyl chloride*	**2**	**4**
1,1,1-TCA (1,1,1-Trichloroethane)	**200**	**29,000**
1,1-DCE (1,1-Dichloroethene)	**7**	**5,100**
Naphthalene	**8.3**	**2,000**
Chloroform	**80**	**1,000**
Methylene chloride	**5**	**380**
Benzene	**5**	**52**
Toluene	**1,000**	**8,200**
Ethylbenzene	**700**	**10,000**
Xylene	**10,000**	**20,000**
Carbon Tetrachloride	**5**	**22**

Notes:
1. Yellow shading indicates primary COCs that have been detected historically above residential levels in multiple wells
2. **Bold** font indicates proposed short list of 15 VOCs that will be analyzed during quarterly monitoring events, not including closure sampling
3. Asterisk "*" indicates constituent is a typical breakdown product of PCE
4. US EPA 846 Method 8260 will be the laboratory method used on this short list of COCs

FIGURES



MUNDELL & ASSOCIATES, INC.
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Project Number: M01046
Drawing File: GW Analytical
Date Prepared: 6/20/08
Scale: 1"=80' ±

Groundwater Analytical Results
June 2-6, 2008
Michigan Plaza
3801-3823 West Michigan Street
Indianapolis, Indiana

FIGURE
1

BLDG 2
201-211

BLDG 6
601-611

BLDG 10
1001-1011

BLDG 1
101-111

MMW-11S

MMW-1S

MMW-10S

MMW-8S

MMW-9S

Michigan Street

MW168D

MW168S

Michigan Plaza

MMW-P-07

MMW-P-08

MMW-P-10S
MMW-P-10D

MMW-P-01

MGW-5

Village Pantry (3801)

Former Public Library (3805)

MMW-P-06

MMW-P-05

Former Handicap Workshop (3815)

Former Office Space(3817)

Zacatecas (3819)

Michigan Plaza Family Laundry (3823)

MMW-P-04

MMW-P-02

MMW-P-03S
MMW-P-03D

Little Eagle Creek

NORTH

SCALE
0 80
feet

Keramida Monitoring Well Locations Referenced from Keramida Environmental, Inc.
Project No. 2829
March 13, 2002

GP-C-06 (7/31/2008)	23'	30'	40'	50'
PCE	173	<5.0	<5.0	<5.0
TCE	<5.0	<5.0	<5.0	<5.0
cis-1,2-DCE	13.6	13.8	<5.0	7
trans-1,2-DCE	<5.0	<5.0	<5.0	<5.0
VC	<2.0	5.5	11.5	<2.0

MW171S

MW171D

MMW-C-01/
GP-C-06

GP-C-07

GP-C-07 (7/31/2008)	23'	30'	40'	50'
PCE	<5.0	<5.0	<5.0	<5.0
TCE	<5.0	<5.0	<5.0	<5.0
cis-1,2-DCE	19.7	13.7	22.4	92.9
trans-1,2-DCE	<5.0	<5.0	<5.0	<5.0
VC	18.5	14.7	34.6	124

GP-C-08

GP-C-08 (7/31/2008)	23'	30'	40'	50'
PCE	<5.0	<5.0	<5.0	<5.0
TCE	<5.0	<5.0	<5.0	<5.0
cis-1,2-DCE	<5.0	<5.0	5.3	8.9
trans-1,2-DCE	<5.0	<5..0	<5.0	<5.0
VC	2.7	6.3	23.1	43.5

MMW-C-02/
GP-C-09

GP-C-09 (8/1/2008)	23'	30'	40'	50'
PCE	<5.0	<5.0	<5.0	<5.0
TCE	<5.0	<5.0	<5.0	<5.0
cis-1,2-DCE	<5.0	<5.0	<5.0	<5.0
trans-1,2-DCE	<5.0	<5.0	<5.0	<5.0
VC	<2.0	<2.0	<2.0	60.1

Olin Avenue

LEGEND

- Roadway
- MW171S — Keramida Monitoring Wells
- MUNDELL Sewer Sampling Locations (September & November 2005)
- MMW-P-06 — MUNDELL Monitoring Wells (September 2005)
- MMW-P-07 — MUNDELL Monitoring Wells (January 2007)
- MMW-11S — MUNDELL Monitoring Wells (May-June 2007)
- GP-C-08 — MUNDELL Test Boring (August 2008)
- MMW-C-02/ GP-C-09 — MUNDELL Monitoring Wells (August 2008)

MW169S

MW169D

Floral Park Cemetery

MMW-P-09D

MMW-P-09S

Well ID		IDEM Default Cleanup Levels	
		Residential	Industrial
PCE	Tetrachloroethene (ug/L)	5	55
TCE	Trichloroethene (ug/L)	5	31
cis-DCE	cis-1,2-Dichloroethene (ug/L)	1000	70
VC	Vinyl Chloride (ug/L)	2	4

Results in **Blue** are above IDEM RISC Default Residential Cleanup Levels.

Results in **Red** are above IDEM RISC Default Industrial Cleanup Levels.

Green shaded data depict results indicating reductive dechlorination has been occurring in this location due to CAP-18 injections.

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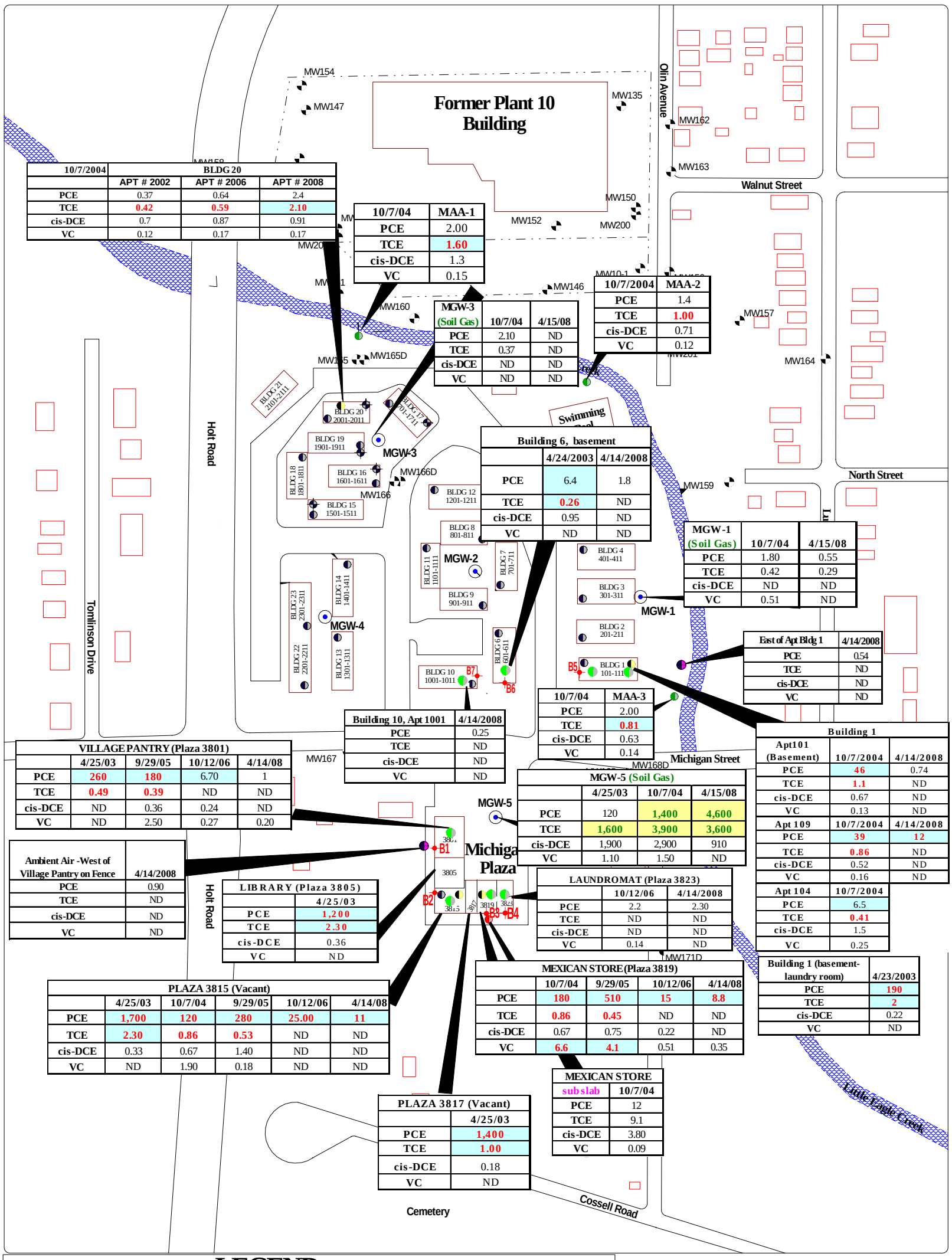
Project Number: M01046
Drawing File: GW Analytical
Date Prepared: 8/20/08
Scale: 1"=80' ±

Groundwater Analytical Results
Cemetery Property (August 2008)
Michigan Plaza
3801-3823 West Michigan Street
Indianapolis, Indiana

FIGURE
2



10/7/2004	BLDG 20		
	APT # 2002	APT # 2006	APT # 2008
PCE	0.37	0.64	2.4
TCE	0.42	0.59	2.10
cis-DCE	0.7	0.87	0.91
VC	0.12	0.17	0.17

10/7/04	MAA-1
PCE	2.00
TCE	1.60
cis-DCE	1.3
VC	0.15

MGW-3 (Soil Gas)	10/7/04	4/15/08
PCE	2.10	ND
TCE	0.37	ND
cis-DCE	ND	ND
VC	ND	ND

10/7/2004	MAA-2
PCE	1.4
TCE	1.00
cis-DCE	0.71
VC	0.12

Building 6, basement		
	4/24/2003	4/14/2008
PCE	6.4	1.8
TCE	0.26	ND
cis-DCE	0.95	ND
VC	ND	ND

MGW-1 (Soil Gas)	10/7/04	4/15/08
PCE	1.80	0.55
TCE	0.42	0.29
cis-DCE	ND	ND
VC	0.51	ND

East of Apt Bldg 1	4/14/2008
PCE	0.54
TCE	ND
cis-DCE	ND
VC	ND

10/7/04	MAA-3
PCE	2.00
TCE	0.81
cis-DCE	0.63
VC	0.14

Building 10, Apt 1001	4/14/2008
PCE	0.25
TCE	ND
cis-DCE	ND
VC	ND

VILLAGE PANTRY (Plaza 3801)				
	4/25/03	9/29/05	10/12/06	4/14/08
PCE	260	180	6.70	1
TCE	0.49	0.39	ND	ND
cis-DCE	ND	0.36	0.24	ND
VC	ND	2.50	0.27	0.20

Ambient Air -West of Village Pantry on Fence	4/14/2008
PCE	0.90
TCE	ND
cis-DCE	ND
VC	ND

LIBRARY (Plaza 3805)	
	4/25/03
PCE	1,200
TCE	2.30
cis-DCE	0.36
VC	ND

MGW-5 (Soil Gas)			
	4/25/03	10/7/04	4/15/08
PCE	120	1,400	4,600
TCE	1,600	3,900	3,600
cis-DCE	1,900	2,900	910
VC	1.10	1.50	ND

LAUNDROMAT (Plaza 3823)		
	10/12/06	4/14/2008
PCE	2.2	2.30
TCE	ND	ND
cis-DCE	ND	ND
VC	0.14	ND

PLAZA 3815 (Vacant)					
	4/25/03	10/7/04	9/29/05	10/12/06	4/14/08
PCE	1,700	120	280	25.00	11
TCE	2.30	0.86	0.53	ND	ND
cis-DCE	0.33	0.67	1.40	ND	ND
VC	ND	1.90	0.18	ND	ND

MEXICAN STORE (Plaza 3819)				
	10/7/04	9/29/05	10/12/06	4/14/08
PCE	180	510	15	8.8
TCE	0.86	0.45	ND	ND
cis-DCE	0.67	0.75	0.22	ND
VC	6.6	4.1	0.51	0.35

MEXICAN STORE	
sub slab	10/7/04
PCE	12
TCE	9.1
cis-DCE	3.80
VC	0.09

PLAZA 3817 (Vacant)	
	4/25/03
PCE	1,400
TCE	1.00
cis-DCE	0.18
VC	ND

Building 1		
Apt101 (Basement)	10/7/2004	4/14/2008
PCE	46	0.74
TCE	1.1	ND
cis-DCE	0.67	ND
VC	0.13	ND
Apt 109	10/7/2004	4/14/2008
PCE	39	12
TCE	0.86	ND
cis-DCE	0.52	ND
VC	0.16	ND
Apt 104	10/7/2004	
PCE	6.5	
TCE	0.41	
cis-DCE	1.5	
VC	0.25	

Building 1 (basement-laundry room)	4/23/2003
PCE	190
TCE	2
cis-DCE	0.22
VC	ND

LEGEND

- Fence
- MW160 — Keramida Groundwater Monitoring Well
- MUNDELL Air Quality Sampling Location (Dec. 10, 2001)
- MUNDELL Air Quality Sampling Location (April 23 & 24, 2003)
- MUNDELL Ambient (outside) Air Quality Sampling Location (Oct. 2004)
- MUNDELL Indoor Air Quality Sampling Location (Oct. 2004)
- MUNDELL Below Slab Sampling Location (Oct. 2004)
- MUNDELL Indoor Air Quality Sampling Location (April 2008)
- MUNDELL Ambient (outside) Air Quality Sampling Location (April 2008)
- B2 — MUNDELL Existing Air Mitigation System Locations (April 2008)
- MGW-5 — MUNDELL Monitoring Gas Well

180 Results in RED exceed EPA guidance and those in SHADING exceed IDEM target indoor air residential/industrial concentrations

1,600 Results in GREEN exceed EPA guidance and those in SHADING exceed IDEM target residential/ industrial concentrations (soil gas)

NORTH

SCALE 0 200 feet

Sample Location	
PCE	Tetrachloroethane (ug/m^3)
TCE	Trichloroethene (ug/m3)
cis-DCE	cis-1,2-Dichloroethene (ug/m3)
VC	Vinyl chloride (ug/m3)
Note: ND = Not Detected	

Keramida Monitoring Well Locations Referenced from Keramida Environmental, Inc. Project No. 2829 March 13, 2002

9/23/2008 4:19 PM

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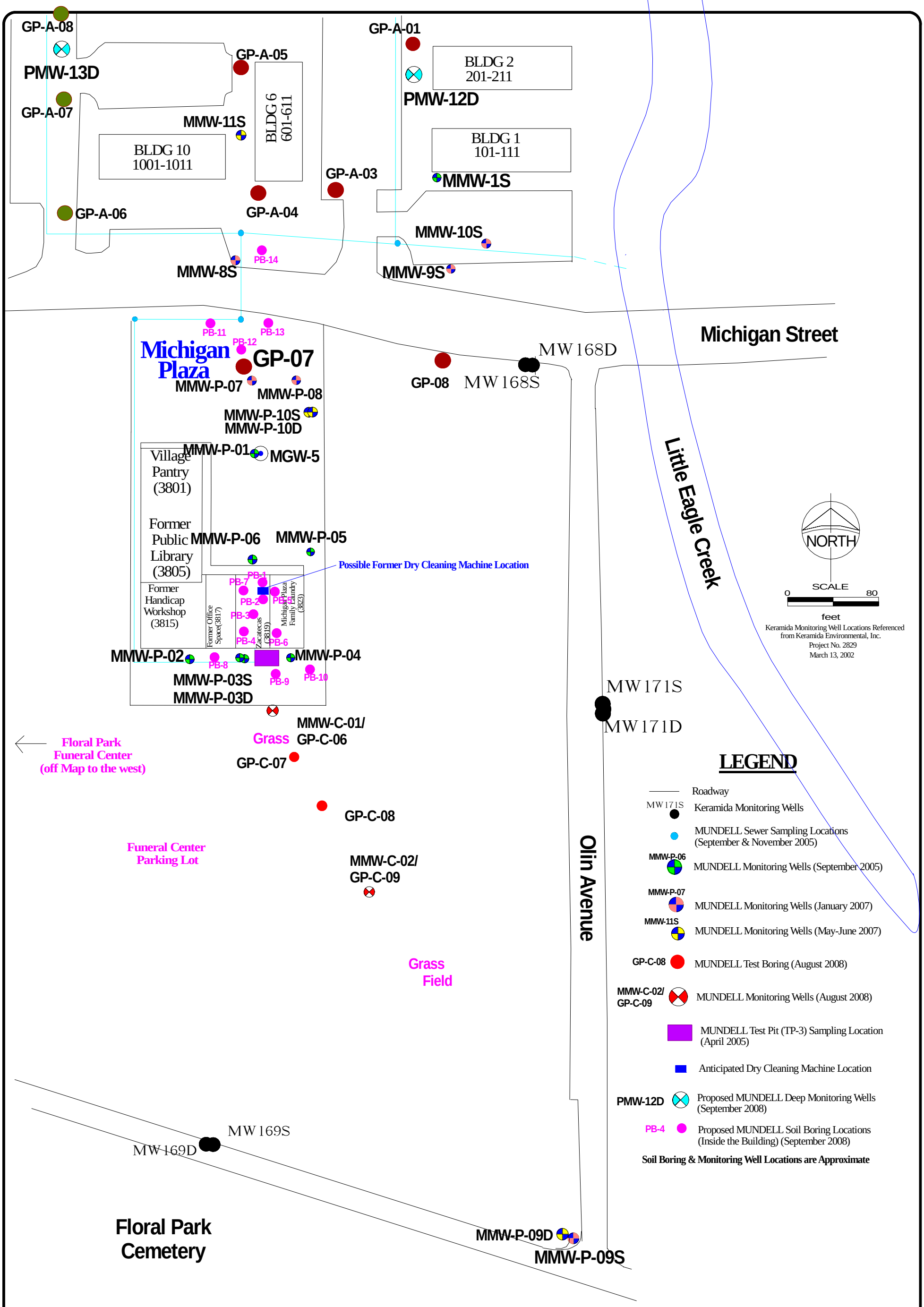
Project Number: M01046
Drawing File: Base Map.SKF
Date Prepared: 5/15/08
Scale: 1"=200'6

Recent & Historical Air Analytical Results
Michigan Apartments & Michigan Plaza
3800-3823 West Michigan Avenue
Indianapolis, Indiana

FIGURE 3



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Project Number:	M01046
Drawing File:	GW Analytical
Date Prepared:	8/20/08
Scale:	1"=80' ±

Proposed Deep Monitoring Wells &
Soil Boring Locations
Remediation Work Plan Addendum I
Michigan Plaza
3801-3823 West Michigan Street
Indianapolis, Indiana

FIGURE
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